Remarks

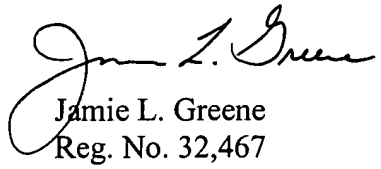
In the enclosed Response to Notification of Defective Response, applicants have amended the Sequence Listing to separate SEQ ID NO 4 into two sequences. Upon entry of this preliminary amendment, the specification will correspond to the sequences set forth in the substitute Sequence Listing to correctly indicate the SEQ ID NOS of these two portions of the peptide nucleic acid below their respective sequences.

On page 7 of the specification, peptide nucleic acid (PNA) 058 was originally identified as a single sequence having the designation SEQ ID NO 4. The right portion of this peptide nucleic acid (PNA) 058 is now labeled as SEQ ID NO 3, and the left portion of originally filed SEQ ID NO 4 remains labeled as SEQ ID NO 4. A marked up copy of page 7 of the specification showing the changes made is enclosed.

Conclusion

Applicants respectfully submit that this Preliminary Amendment places the specification and all claims in the present application in condition for allowance, and such action is courteously solicited. The Examiner is invited and encouraged to contact the undersigned attorney of record at (404) 745-2473 if such contact will facilitate an efficient examination and allowance of the application.

Respectfully submitted,



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strand was designed for Watson-Crick recognition of DNA and the other strand is designed for Hoogsteen recognition of a PNA-DNA duplex and should be optimal for PNA_2DNA triplex stability and thus enhance strand-displacement binding to double-stranded DNA.

PNA058

N TTTTCCCTTCCTTTT LLL TTTTCCTTCCCTTT C [(SEQ ID NO 4)]

(SEQ ID NO 4) (SEQ ID NO 3)

Each PCR product (5µg/ml) was incubated with each PNA probe (10 µg/ml), at 37°C in 0.5 X TE buffer (1 mM Tris.HCl, 0.1 mM EDTA, 5 mM NaCl, pH 8.0) for varying time intervals before the reaction was terminated by adding 150 mM HBS, pH 7.4 on ice. Samples were run on a non-denaturing 12% polyacrylamide gel. The electrophoretic mobility of the triplex PNA_2DNA was compared to the duplex DNA of the relevant PCR product and visualised by EtBr staining. Triplex structures were observed suggesting that PNA can directly detect double-stranded PCR products.

The results of the gel retardation studies showed that single-stranded PNA did not strand invade the PCR products within the first 60 minutes. (This is backed up in the literature where it has been demonstrated that the association of a bis-PNA with a single strand of homopurine DNA gives a complex that is significantly more stable than the one formed with two single PNA strands due to a more favourable entropy of reaction.)

Bis-PNA, however, formed a triplex within the first 10 minutes of reaction.

Example 2

Detection of triplexes on a surface plasmon resonance (SPR) surface.

Biotin labeled bis-PNA (50 µg/ml) was linked to a dextran surface (Biacore, SAchip) via a streptavidin-biotin interaction. A sample of both PCR products (10 µg/ml), in water, was flowed

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